

REMARKS

Claims 17-33 are all the claims pending in the application.

Initially, Applicants thank the Examiner for acknowledging Applicant's claim for foreign priority; however, the Examiner has not confirmed receipt of the priority document. Since the priority document was filed in the parent application, the Examiner is respectfully requested to confirm receipt.

**I. Response to rejection of claims 17-33 under 35 U.S.C. § 112, second paragraph**

The Examiner rejects claims 17-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Basically, the Examiner asserts that claims 17, 18, 30 and 31 disclose the steps required to form an impregnated electrode, which is but one component of a battery.

In response, Applicants respectfully traverse this rejection for the reason that the rejection is improper.

Applicants submit that the claims are definite. Claims 17, 18, 30 and 31 recite steps directed not only to the impregnated electrode, but recite steps to the provision of an electrode that is contained in the battery, as well. In this case, the Examiner appears to be asserting that the claims are indefinite because the claims are broad, which is improper. In this regard, Applicants direct the Examiner's attention to MPEP 2173.04 which states "that the breadth of a claim is not to be equated with indefiniteness". *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971).

In view of the above, it is respectfully submitted that the subject matter of claims 17, 18, 30 and 31 are clear and comply with 35 U.S.C. § 112, second paragraph. Accordingly, withdrawal of the foregoing rejection is respectfully requested.

**II. Response to rejection of claims 17 and 30 under 35 U.S.C. § 103(a)**

The Examiner rejects claims 17-33 under 35 U.S.C. 103(a) as being unpatentable over Ichino et al. (U.S. Patent 5,828,264).

Basically, the Examiner cites Ichino as disclosing a method forming an electrode for use in a battery comprising the steps of the present invention (col. 5, lines 1-22 and 7, lines 45-57).

The Examiner acknowledges that Ichino does not disclose that impregnation of the electrode proceeds under reduced pressure. However, the Examiner takes the position that it would have been obvious to one of ordinary skill in the art that the electrolyte impregnation could have occurred under vacuum motivated by the fact that Ichino discloses vacuum impregnation to form a polymerizable electrolyte film, because the material is introduced more efficiently and completely into the structure.

In response, Applicants respectfully traverse this rejection for the reason that Ichino does not teach or suggest the present invention.

The present invention relates to a battery obtained by contacting an SPE film with a porous electrode and reducing the pressure inside the porous electrode to fix the SPE to the porous electrode (claims 17 and 30). The present invention also relates to a battery obtained by coating an electrode surface with a polymerizable compound that is converted to a SPE or pre-SPE and reducing the pressure inside the porous electrode after superposing the electrode surface with the SPE (claims 18 and 31).

Ichino relates to a composite polymer electrolyte membrane which includes an ion-conductive polymer gel contained and supported by a matrix material formed of a porous polytetrafluoroethylene membrane. The polymer electrolyte membrane is useful as a separator between electrodes of a lithium secondary cell. More specifically, a polymer gel electrolyte is formed by first impregnating the organic polymer component into the porous membrane, and then immersing the impregnated membrane in a solution containing the ion-conductive component. *See* col. 5, lines 1-5. In addition, Ichino discloses that a polymer solution is cast onto a substrate under vacuum to form a film, and then immersed in an ion-conductive solution. *See* col. 7, lines 45-57.

Therefore, Ichino discloses that the polymer solution is impregnated into a porous membrane of PTFE.

In contrast, in the present invention, a SPE film is contacted with a porous electrode (comprising an electrochemically active substance in claims 17 and 30), and the pressure inside the porous electrode is reduced to fix the porous electrode and the SPE film. Specifically, the claims recite "reducing pressure inside the porous electrode". Although Ichino discloses that the membrane can be used between electrodes as a separator, Ichino does not teach the use of a porous electrode and Ichino does not teach or suggest that the pressure inside the porous electrode is reduced. Accordingly, Ichino does not teach the method of forming the composite of the SPE film and porous electrode of the present invention.

In addition, Ichino discloses impregnating the porous PTFE membrane by impregnating the membrane with a polymer solution. In contrast, in the present

invention according to claims 18 and 31, the polymerizable compound is coated on the surface of the porous electrode.

In view of the above, it is respectfully submitted that Ichino does not teach or suggest the present invention. Accordingly, withdrawal of the foregoing rejection is respectfully requested.

**III. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Keiko K. Takagi  
Registration No. 47,121

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE



23373

PATENT TRADEMARK OFFICE  
Date: March 18, 2003